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Electronic Submission

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Portals II, Room TW-A325
Washington, DC 20554

Ex Parte Submission

RE: Amendment of the Commission's Rules Governing Radiated Power Limits for the Cellular Service, RM 11660

AT&T Request for Waiver to Permit Power Spectral Density Model for 800 MHz Cellular Operations in Three Florida Markets, WT Docket No. 13-202

Amendment of Parts 1 and 22 of the Commission's Rules with Regard to the Cellular Service, Including Changes in Licensing of Unserved Areas, WT Docket No. 12-40, RM-11510

Dear Ms. Dortch:

To assist the Federal Communications Commission in considering the issues in the Further Notice of Proposed Rulemaking in this docket pertaining to the use of a power spectral density limit ("PSD") for base station operations in the Cellular service, AT&T supplements its comments with the information in this letter.

Commenters have proposed that the Commission adopt a power flux density ("PFD") limit to reduce the potential for interference to public safety devices from base stations operating using PSD limits.¹ AT&T does not believe this is necessary. PFD and PSD are directly correlated. Thus, if as demonstrated by the engineering study attached to AT&T's PSD Petition for Rulemaking, base stations operating with a PSD limit do not increase the potential for harmful interference to public safety devices, then the PFD from those base stations likewise does not increase the potential for interference to public safety devices. Moreover, as Cellular licensees transition away from GSM technology, AT&T expects the PFD to decrease, to levels lower than are allowed under current Commission rules.

¹ See e.g., Reply Comments of Verizon Wireless, RM 11660, at 6 (June 18, 2012); Comments of Verizon, WT Docket No. 12-40, at 6 (Jan. 21, 2015); Comments of Pericle Communications Company and Shulman, Rogers, Gandal, Pordy & Ecker, P.A., WT Docket No. 12-40, at 19 (Jan. 21, 2015).

In Appendices 1-4 attached to this letter, AT&T demonstrates how PFD is a non-factor. For example, Appendix 2 shows that at 1 kilometer from a base station with 4 GSM and 2 UMTS channels in a sector, which currently exists in AT&T's network, each operating at 500 W, the PFD can be as high as $148.5 \mu\text{watts/m}^2/\text{MHz}$ for GSM plus $7.42 \mu\text{watts/m}^2/\text{MHz}$ for UMTS over the occupied spectrum. Appendix 3 shows that a base station operating with a PSD of 250 W/MHz, as AT&T has proposed, over 10 MHz (i.e. at 2500 W total power) would generate a PFD of $18.65 \mu\text{watts/m}^2/\text{MHz}$ over that 10 MHz.

AT&T also opposes the use of PFD to replace the field strength limits and service area boundaries in recently adopted Commission rules. The 40 dB μ V/m field strength limit at the boundary of the neighboring co-channel licensee's CGSA adopted in FCC 14-181 should not be replaced with a PFD. One goal of the CGSA rulemaking was to develop rules consistent with the rules in other bands.

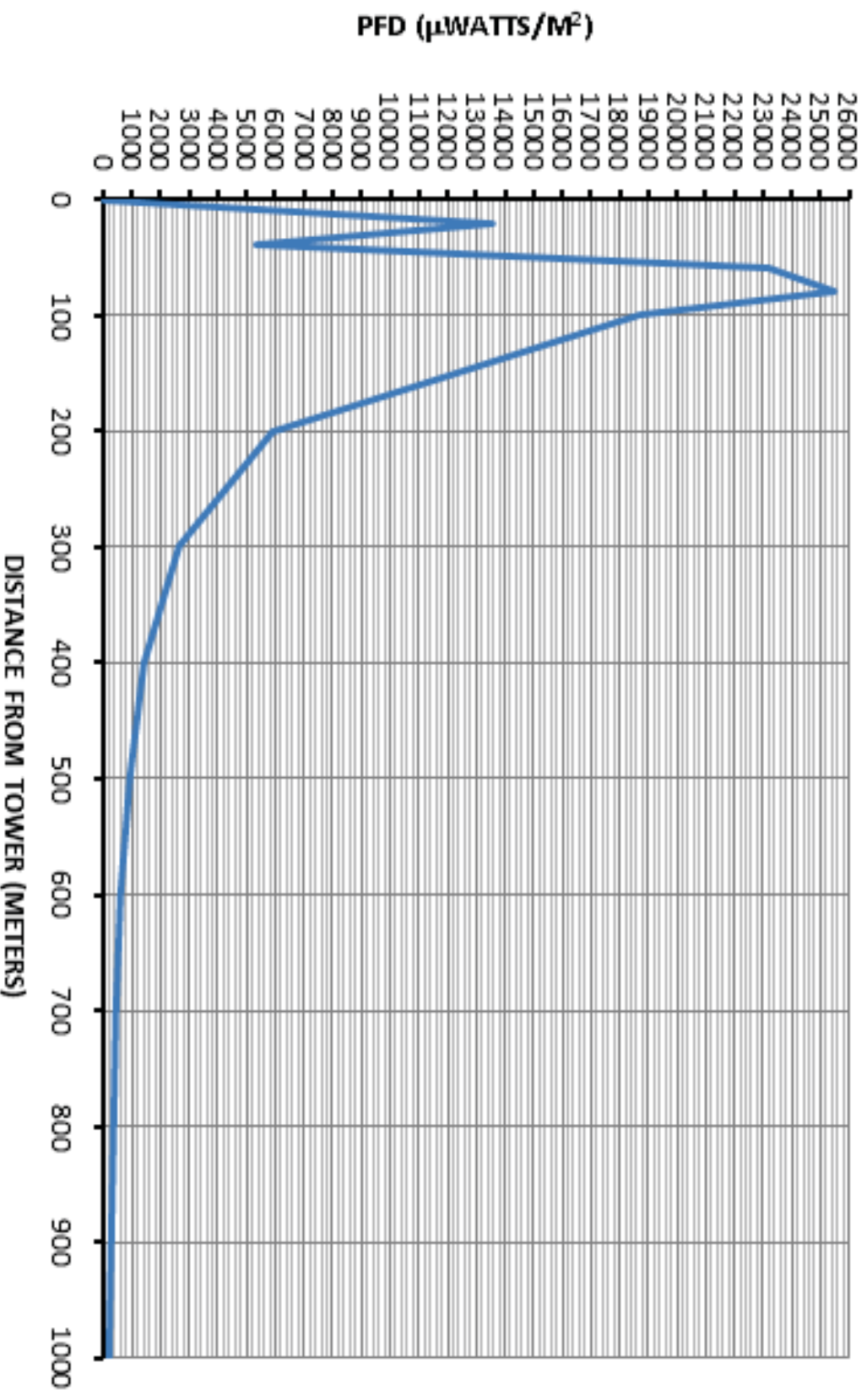
Under AT&T's proposal, narrowband channels would be allowed to operate under current rules up to 500 W in non-rural areas and 1000 W in rural areas and wideband channels would be allowed to operate up to a PSD of 250 W/MHz in non-rural areas and 500 W/MHz in rural areas per sector, even with both technologies operating. But in no event could the total power averaged over the available Cellular spectrum in a sector exceed the maximum PSD (i.e., maximum power in a non-rural 12.5 MHz block is 3125 W total power (250 W/MHz)). For example, in a 12.5 MHz spectrum block in a non-rural base station sector, a Cellular licensee could operate one GSM channel at 500 W and one 10 MHz LTE channel at 2500 W [$250 \text{ W/MHz} \times 10$], for a total power of 3000 W [$240 \text{ W/MHz} (3000/12.5)$] in the sector. A licensee seeking to operate two GSM channels with the 10 MHz LTE channel would have to reduce power such that total power does not exceed 3125 W total power (250 W/MHz). However, AT&T has acknowledged that higher PSD levels, such as those proposed by Verizon, may be needed in the future to most-efficiently operate in the Cellular band and that Commission base station power rules should adopt a timeline to transition to higher PSD levels as public safety entities retire poorer performing radios. Applying PSD limits per transmitter should be part of that transition.

In accordance with section 1.1206(b)(2) of the Commission's rules, this letter is being filed electronically with your office. Please feel free to contact me if you have any questions.

Sincerely,

cc: Roger Noel
Tom Derenge
Moslem Sawez
Lloyd Coward
Nina Shafran

WORST CASE TOTAL PFD AT 850 MHz WITH 4 FOOT PANEL ANTENNA 15 METERS AGL

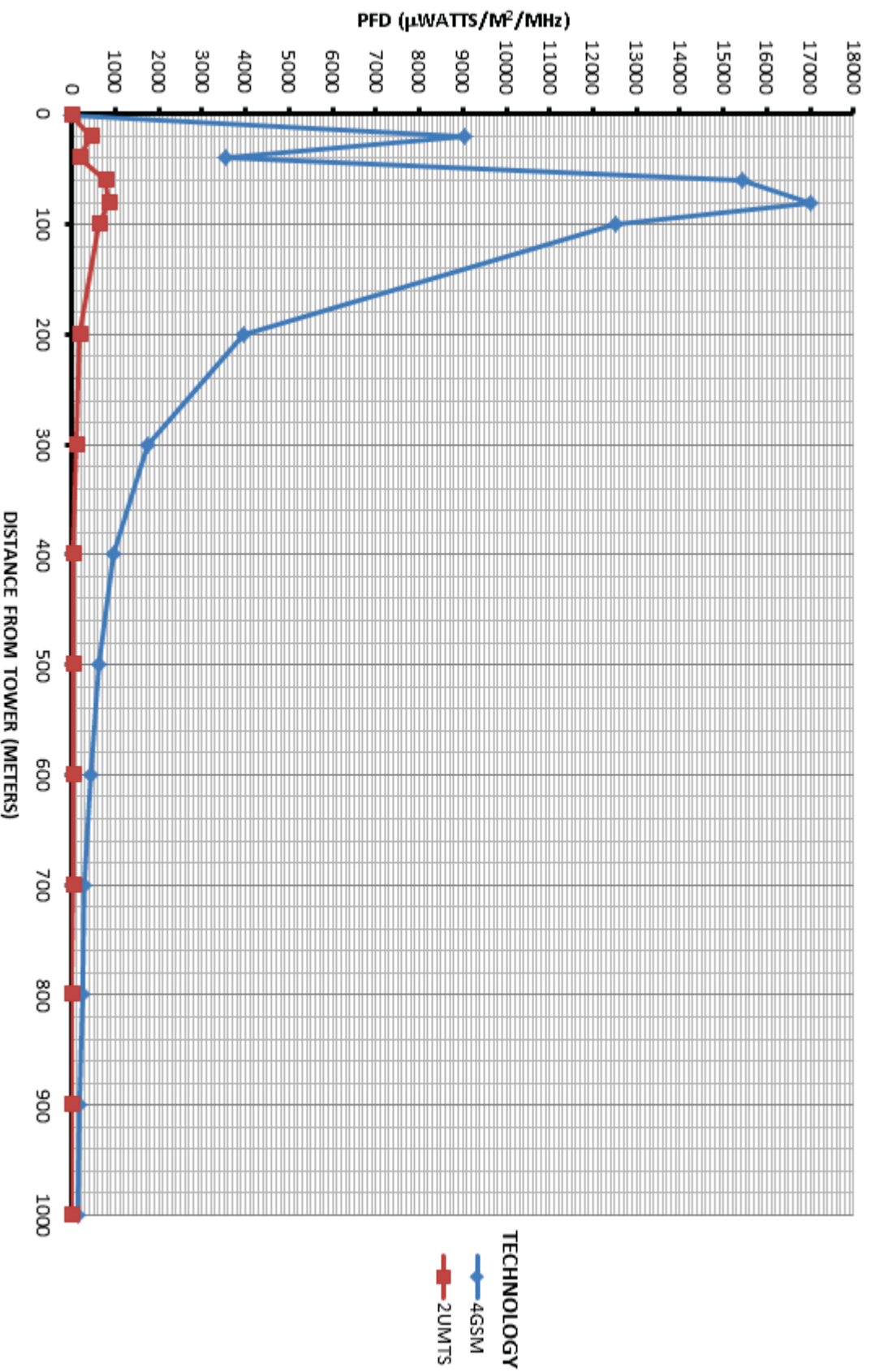


Worst Case PFD at 1 km = 222.75 $\mu\text{watts}/\text{m}^2$

Appendix 2

Sector with 4 GSM and 2 UMTS Channels Operating at 500 W ERP Each (3000 W Total Power)

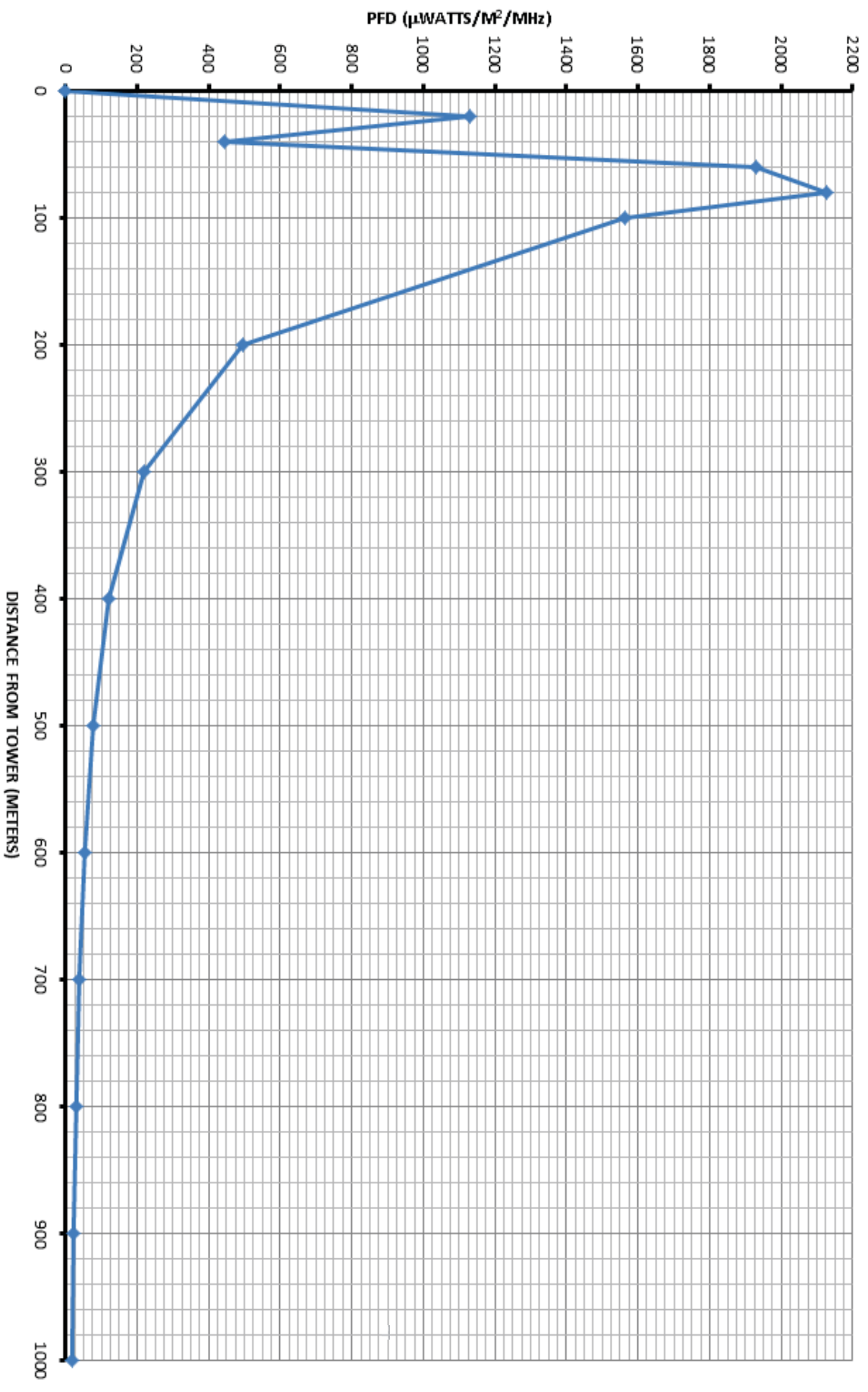
PFD AT 850 MHz WITH 4 FOOT PANEL ANTENNA 15 METERS AGL



Worst Case PFD at 1 km = 148.5 $\mu\text{watts/m}^2/\text{MHz}$ for 4 GSM

7.42 $\mu\text{watts/m}^2/\text{MHz}$ for 2 UMTS

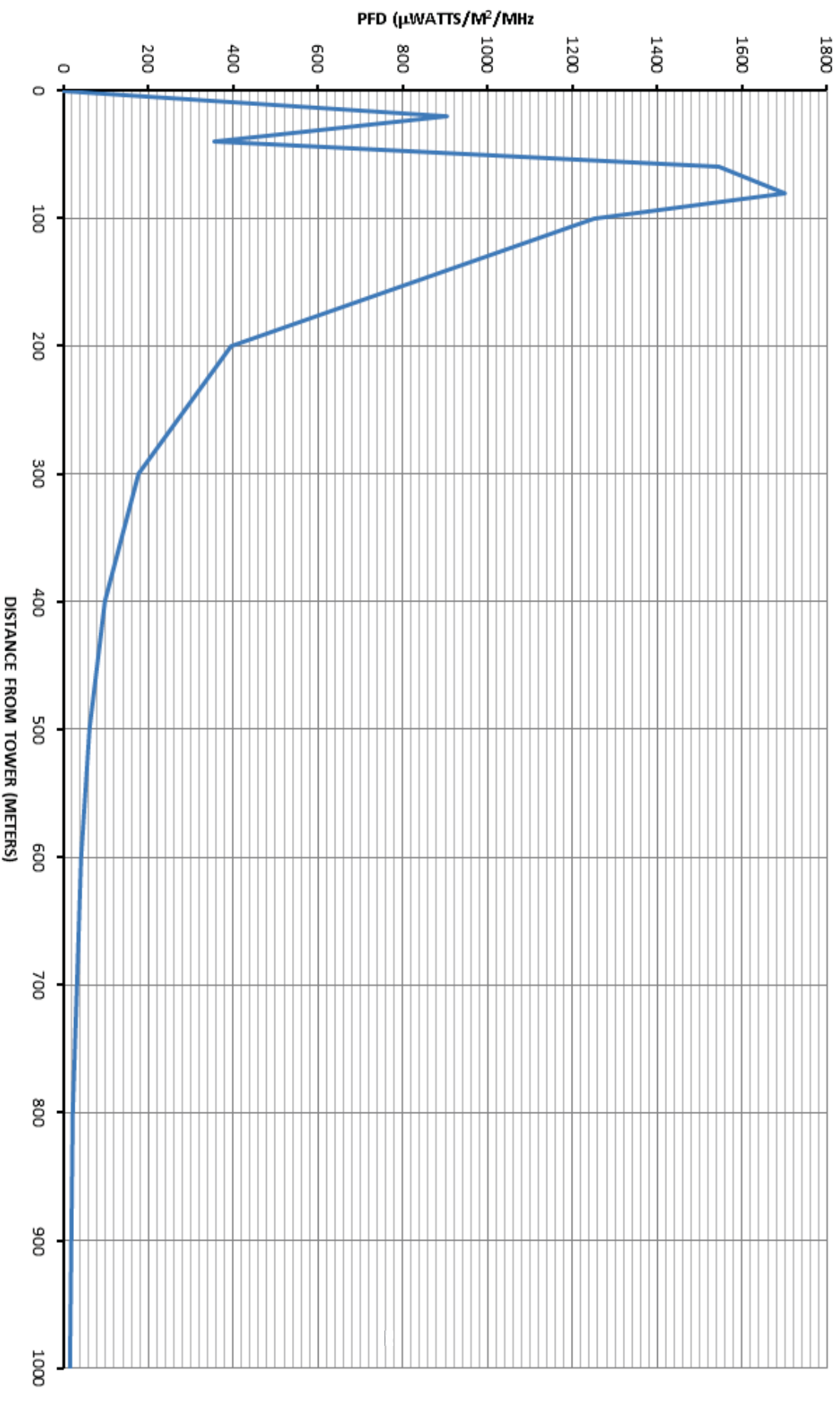
Appendix 3
Average PFD per MHz of a Sector Operating at 2500 W Total Power Over 10 MHz



Average PFD at 1km = 18.65 μwatts/m²/MHz

Appendix 4

PFD per MHz of Typical Sector with 2 GSM and 2 UMTS Channels
Operating at 500 W/MHz Each (2000 W Total Power) Over ≈ 11 MHz



PFD at 1 km = 14.85 $\mu\text{watts}/\text{m}^2/\text{MHz}$